



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,180	05/25/2001	Isao Matsumoto	13041.14US01	4591

7590 05/19/2004

Merchant & Gould P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,180

Applicant(s)

MATSUMOTO, ISAO

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-8 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The rejection of claims 9-11 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been overcome by the applicant.

Election/Restrictions

Newly submitted claims 13-20 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The originally presented claims are to spirally rolled electrodes for a battery and the combination of a battery comprising the spirally rolled electrodes. The newly added claims are to a method of producing a battery and a battery that does not require the subcombination of the spirally rolled electrodes.

Inventions I (spirally rolled electrodes and a battery comprising the subcombination of the spirally rolled electrodes) and II (a method for producing batteries) are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, batteries may be made by a different method such as forming a laminate of electrodes with a solid polymer electrolyte between the electrodes and

Art Unit: 1745

forming a concentric circle or elliptic shape, winding the laminate, placing the laminate into a battery can, adding an electrolyte solvent into the can and welding a lid onto the can.

Inventions I (spirally rolled electrodes) and III (a battery) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the battery does not require spirally rolled electrodes. The subcombination has separate utility such as an electrode that may be used in other applications.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 12-20 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 1745

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kito et al.

(US 6,258,487 B1.)

The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a positive electrode, a negative electrode and a separator there between. The positive and/or negative electrode comprises a combination of plural electrode plates. Each combination of plates has a substantially constant amount of active or pseudo active material. Each electrode plate in the electrode is wound in series with an interval between each plate.

Kito et al. (US 6,258,487 B1) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The combination of plates has a substantially constant amount of active or pseudo active material as one electrode is prepared and divided into equivalent sections. The electrodes inherently are selected and have an individual weight. Thus, the claims are anticipated.

Claims 1-2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagura et al. (US 5,534,369.)

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between (see col. 5 and figures 4-7.) The combination of plates has a substantially constant amount of active or pseudo active material as the electrodes are uniformly prepared and divided into equivalent sections (col.

4, line 50 – col. 5, line 30.) The electrodes inherently are selected and have an individual weight. Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitoh et al. (US 6,258,487 B1) OR Nagura et al. (US 5,534,369) as applied above, and further in view of Nakai et al. (JP 60-180,058.)

Kitoh et al. (US 6,258,487 B1) and Nagura et al. (US 5,534,369) teach a battery including spiral-rolled electrodes with a divided electrode base plate as previously described. The references are silent to the dimensions of the sidewalls and bottom of the battery case. Nakai et al. (JP 60-180,058, abstract), however, teaches a cylindrical battery container wherein the thickness of the sidewalls of the case is made to be more thin than the thickness of the bottom of the container. The ratio of the thickness of the bottom to the sidewalls is greater than 1.5. The thicker part is at the border of the sidewall and the case as well as along the entire bottom of the case. It would be obvious to one of ordinary skill in the art at the time the invention was made to make the thickness of the side-walls of the case of Kitoh et al. (US 6,258,487 B1) OR Nagura et al. (US 5,534,369) to be more thin than the thickness of the bottom of the container in a ratio of greater than 1.5. The resultant can allows for a durable casing and will improve the battery

Art Unit: 1745

characteristics by increasing the inner diameter and volume of the can thus allowing for more active material and a higher capacity. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

With regard to claim 11, the reference does not teach a battery wherein the adjacent positive terminal of the battery is welded by a metallic connector to the bottom of the adjacent battery case. Connecting batteries in series is broadly known in the art to increase the voltage of a battery. It would be obvious to one of ordinary skill in the art at the time the invention was made to weld a connector between two adjacent batteries in order to allow for a connection in series. Welding the connector will provide a secure connection to the terminals, which will allow for the transfer of electrons.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagura et al. (US 5,534,369) as applied above, and further in view of Kaido et al. (EP 814,525.)

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate as previously described. The reference teaches a metal foil area without active material along the edge of one side in the cylindrical direction. Nagura et al. (US 5,534,369) does not teach the foil area without active material along the edge of one side in the winding direction. Kaido et al. (EP 814,525) teaches an electrode plate for a non-aqueous electrolyte battery. The plate includes a conductive plate with an active material coated onto sections of the plate in a manner to leave an uncoated area along an edge of the plate and at predetermined intervals in a winding direction (claims 25-34 and the figures.) The uncoated edge area is used to attach a conductive tab plate in order to transfer charge. It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare an electrode plate

Art Unit: 1745

with an exposed edge in a winding direction. As the electrode plate is wound, the exposed area will provide a means for attaching a conductive tab to the electrode and transfer the charge to the terminal of the battery as taught in Kaido et al. (EP 814,525; page 3, lines 20-30 and 50-60.) As Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes that are separated, one of ordinary skill in the art would recognize from the teachings of Kaido et al. (EP 814,525) that exposing an edge of the plate in the rolled direction will allow for the attachment of a tab to each segment and a means to transfer charge from the battery. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Allowable Subject Matter

Claims 4-8 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a thin nickel positive electrode, a thin metal hydride negative electrode and a separator wound in between. The positive and negative electrodes comprise a combination of plural electrode plates wound in series in order. Each combination of plates has a substantially constant amount of active or pseudo active material. Each electrode plate in the electrode is wound in series with an interval between each plate. The thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. The prior art does not teach a nickel metal hydride battery where the positive and negative electrodes comprises a combination of plural electrode plates wound in series in order; each electrode plate in the electrode is wound in series with an interval between each

Art Unit: 1745

plate; and thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends.

Wound batteries with separated electrode plates are well described in the art as noted by Kitoh et al. (US 6,258,487 B1) and Nagura et al. (US 5,534,369) as applied. The references do not teach batteries including a thin nickel positive electrode, a thin metal hydride negative electrode and a separator wound in between or that the thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. As such, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed 1/26/2004 have been fully considered but they are not persuasive. The applicant argues that the prior art references do not teach that the electrode plates "are selected from among groups of plates classified by weight." The amendment does not overcome the art as the inventors in the Kitoh reference and the Nagaura reference will inherently select electrode plates for their batteries. The electrodes have their respective weights. Thus, choosing any electrode will meet the requirements of the amended claim. If the process of selecting the plates is considered part of the invention, MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is

Art Unit: 1745

based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-

Art Unit: 1745


6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky

Primary Patent Examiner

Art Unit 1745


5/14/04